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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,325	06/27/2001	Osamu Samuel Nakagawa	10005208-1	3642
7590	10/18/2004		EXAMINER	
HEWLETT-PACKARD COMPANY				LUU, CHUONG A
Intellectual Property Administration				
P.O. Box 272400				
Fort Collins, CO 80527-2400				ART UNIT
				PAPER NUMBER
				2825

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/891,325	NAKAGAWA, OSAMU SAMUEL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Chuong A Luu	2825	<i>Av</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-11 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### PRIOR ART REJECTIONS

#### Statutory Basis

##### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

##### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

#### **The Rejections**

Claims 1-2 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Hasegawa et al. (U.S. 6,727,536 B2).

Hasegawa discloses a ferroelectric memory device with  
Respect to claims:

- (1) a first electrode (12) formed during a first deposition of a first metal layer of a multi-level semiconductor device;
- a substantially thin dielectric layer (14) configured to be deposited over said first electrode (12);
- a second electrode (16) formed during a second deposition of a second metal layer of said multi-level deposition device, wherein said second electrode (16) is formed over said substantially thin dielectric layer (14), wherein said on-chip capacitor is formed in a crossover area of said first metal layer (12) and said second metal layer (16) of said multi-level semiconductor device (see Figures 9 and 24);
- (2) wherein an angle of intersection between said first metal layer (12) and said second metal layer (16) is between zero and ninety degrees (see Figures 9 and 24);
- (7) wherein said substantially thin dielectric material comprises a composite of materials (see column 10, lines 15-32);
- (8) wherein said material comprises a composite of materials includes PZT and platinum (see column 8, lines 46-53; and column 9, line 53);
- (9) wherein a dielectric constant of said substantially thin dielectric material layer is substantially high (see column 7, line 21).

Regarding the process limitations recited in claims 1-11 (first and second electrode are formed...), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced.

Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*,

173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marosi et al., 218 USPQ 289; and particularly In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear. See also MPEP 706.03(e).

Claims 3-6 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (U.S. 6,727,536 B2) in view of Johnson (U.S. 6,689,644 B2).

Hasegawa teaches everything above except for different configured shapes of the first and second electrodes such as parallel, overlapping, rectangular planar; specific material and thickness of the thin dielectric layer. However, Johnson discloses a non-volatile memory device with (3) wherein said first electrode and said second electrode are configured to be substantially parallel (see column 7, lines 13-17); (4) wherein said first electrode and said second electrode are further configured to be overlapping (see column 18, lines 50-51); (5) wherein said first electrode and said second electrode are configured as a rectangular planar structure (see column 13, lines 10-14); (6) wherein said first electrode and said second electrode are substantially parallel and overlapping; (10) wherein said substantially thin dielectric material layer

includes silicon nitride (see column 8, lines 60-61); (11) wherein said thickness of said substantially thin dielectric material layer is between 50 to 100 Å. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Hasegawa and Johnson to select specific structure configurations as well as material and thickness of the thin dielectric layer for a capacitor structure, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. *In re Stevens*, 101 USPQ 284 (CCPA 1954); *In re Aller*, 105 USPQ 233.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong A Luu whose telephone number is (571) 272-1902. The examiner can normally be reached on M-F (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*C. Everhart*  
CARIDAD EVERHART  
PRIMARY EXAMINER

CAL  
October 12, 2004